A30 Bodmin to Indian Queens

Historic Landscape Assessment of the Belowda Field System

May 2003

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Executive Summary

This Working Paper aims to assess the archaeological importance of the Belowda field system by means of an Historic Landscape Assessment. The document considers in detail the impacts of the A30 Bodmin to Indian Queens Improvement on the field system in terms of cultural heritage, archaeology and visual impact, and makes an evaluation of the relative impacts of the Preferred Scheme with a proposed alternative alignment that passes the field system further to the south. The Working Paper is also intended to address concerns of Cornwall County Council's Senior Archaeologist with regard to the assessment of the impact of the Published Route on the field system as 'moderate adverse' under the Stage 2 Cultural Heritage Assessment (RPS November 2000).

It is clear that, in a regional context, Belowda and Tregoss are outstanding and comparatively rare examples of medieval strip-derived field patterns (Landscape Character Type 8a). On these grounds, the grading of the site as of County or Regional Importance stands. Survival of medieval strip-fields in any clearly recognisable form is also comparatively rare on a national scale. However, the Belowda strip-fields are *not* largely unaltered survivals of the physical traces of a medieval open-field system and, therefore, there is insufficient grounds to justify the re-assessment of this system as nationally important. It is noted that some truncation at the southern edge of the Belowda system has occurred, probably when either the road or railway were built. The straight boundary alignment that now marks the southern edge of the fields clearly relates to these features. Comparison with the southern edge of the Tregoss field system suggests that the medieval and post-medieval boundaries would originally have extended as far as the stream.

The A30 Improvement may be considered as part of the continuing process of landscape development, entirely in keeping with the historic development of the area. Indeed, the construction of the road scheme would provide a unique opportunity to shed light on the key historical processes that have shaped the landscape of Cornwall, through a programme of archaeological investigation.

The field system would not be destroyed by the road construction, although a transect would occur through it (whichever of the two route options is adopted). The field pattern would still be visible from the air and, with a sensitive approach to landscaping and interpretation, may be opened to view from the road and thereby brought to the attention of a wider audience.

On this basis, it is considered that the 'moderate adverse' impact assessment should stand.

Two route options are under consideration. On cultural heritage and historic landscape grounds alone, the arguments are marginally in favour of adopting the Belowda Southern Alternative Route Alignment. However, the archaeological impact of the southern alternative on the field system would be at least as great as the Published Route alignment, as it would cut through the small square meadows along the southern edge of the field system and would impinge to a greater extent on the tin-streaming works to the south of the field system, both of which form an integral part of the historic landscape. In addition, the options for opening up the strips to view from the road, as part of a managed interpretation of the historic landscape, would be limited if the southern alternative alignment was adopted. Overall, the case is not clear-cut and all other factors, including additional costs, timescale and ecological issues, must be considered. On present evidence, these other factors outweigh the cultural heritage benefits of the southern alignment, and it is recommended that the Published Route should be retained.

Recommendations for mitigation of the archaeology and landscaping/visual impact are presented. The archaeological proposals favour extensive strip, map and sample investigation. The approach to landscaping favours 'opening up' the strip fields to view from the road,

minimising reconstruction or realignment of Cornish hedges to maintain the integrity of the field patterns (although the requirement for the mitigation of other environmental impacts such as noise need to be taken into account). Options for low-key public display are also considered.

1.0 Project Background

Introduction

1.1 On 28th March 2001 the Transport Minister announced the adoption of a Preferred Route for the A30 Bodmin to Indian Queens Improvement. Between Indian Queens and Victoria, the scheme passes through the Goss and Tregoss Moors candidate Special Area of Conservation (cSAC) and Site of Special Scientific Interest (SSSI).

1.2 During the second public consultation Cornwall County Council's Senior Archaeologist made a representation concerning a section of the route that would pass through the strip field system at Belowda. The field system is designated as an area of Anciently Enclosed Land, believed to be medieval in origin. The Highways Agency consequently identified an alternative alignment that could potentially reduce the impact on the field system (refer to **Figure 1**). A working paper was produced in September 2001, on behalf of Highways Agency, assessing the relative merits of the two alignments in terms of ecology and nature conservation, cultural heritage and archaeology, landscape and visual impact, land use, water quality, drainage and economics. The working paper concluded that:

1.3 'The alternative alignment at Belowda .... does offer environmental advantages over the published preferred route in terms of cultural heritage, landscape, visual effects and land use throughout the relevant section, although the impacts on ecology and nature conservation may be more adverse in limited areas.....The decision of whether or not to adopt the alternative alignment depends on whether the environmental benefits can be seen to justify the additional expenditure.' (Parkman, September 2001).

1.4 Scott Wilson and Alfred McAlpine have now been commissioned by the Highways Agency to take the Scheme to a preliminary design (to allow Line, Side Road and De-Trunking Orders and Compulsory Purchase Orders to be published by the Secretary of State) (Phase 1), and subsequently through to detailed design and construction (Phase 2) subject to satisfactory completion of Statutory Procedures. This working paper aims to assess the archaeological importance of the Belowda field system by means of an historic landscape assessment, to consider in more detail the relative impacts of the scheme in terms of cultural heritage, archaeology and visual impact, and to make firm recommendations with regard to the route options and appropriate mitigation measures. The working paper is also intended to address concerns of Cornwall County Council's Senior Archaeologist with regard to the assessment of the impact of the Published Route on the field system as 'moderate adverse' under the Stage 2 Cultural Heritage Assessment (RPS November 2000).

2.0 Description of the Belowda-Tregoss Landscape

Geology

2.1 The A30 Improvement runs along the extreme northern edge of the Hensbarrow granite region, one of six granite masses running down the spine of Devon and Cornwall. Some 275 million years ago, volcanic material was intruded into sedimentary rocks of Devonian age (known locally as Killas) transforming them into harder phyllites. Deep weathering of this material has produced clays to depths of up to 6.0m below the present ground surface.

2.2 During the final period of cooling of the granite within the main Hensbarrow Downs region, kaolinisation occurred, producing china clay. Today the landscape of the

Roche and St. Dennis area is characterised by the waste heaps and flooded pits created by china clay extraction, which has been a staple of the local economy since the 1750s. Belowda is c.1 km distant from, but within view of, this 'lunar landscape', the waste heaps dominating the skyline to the south (CAU 2002).

2.3 During the Pleistocene, Goss and Tregoss Moor formed part of an inland lake in which tin-bearing gravel deposits accumulated (Penhallurick, 1986). These sediments, laid down during glacial thaws, may have been exploited by people from the prehistoric onwards and were the main source of tin ore until deep mining began in earnest in Cornwall in the 18th century.

Modern Topography

2.4 The hamlet of Belowda lies on the southern slopes of the Belowda Beacon, a hilltop which rises to 220m above sea level and forms a northern extension of the Hensbarrow granite region. The Iron Age hillfort of Castle-an-Dinas occupies another hilltop, 600m to the west of the settlement.

2.5 The landscape of the Belowda area is one of contrasts: The desolate expanse of Goss Moor occupies a broad plateau separating Castle-an-Dinas and Belowda Beacon to the north, and the main upland mass of the Hensbarrow Downs region to the south.

2.6 The slopes of Belowda Beacon and Castle-an-Dinas, an area of what must once have been extensive and exposed moorland, has been subject to at least two major episodes of enclosure, which are clearly apparent in the modern landscape. To the north of Belowda, the rough upland pasture of Belowda Beacon is enclosed with the long, dead straight field boundaries and large fields, characteristic of 18th and 19th century enclosures. Roads passing through this area are typically unhedged.

2.7 On the lower slopes of the hill lies the hamlet of Belowda, within a distinct block of small strip fields with curving boundaries, marked today with Cornish hedges, typically constructed as stone-faced earthen banks. The strips run down the lower slopes of the Belowda Beacon as far as the modern A30 in the valley bottom. A similar block of strip fields surrounds the hamlet of Tregoss, which faces Belowda across the stream valley to the south (the strips can be clearly seen from Castle-an-Dinas). The settlement is located near the top of a spur, separating two marshy stream valleys which form the source of the River Fal. The strip fields extend down each side of the spur as far as the stream to the south and the railway to the north, and are surrounded to the north, west and south by the lower-lying, open, marshy moorland of Goss and Tregoss Moor. The hamlets within the strip fields are connected by sinuous, narrow lanes, sunken and lined with Cornish hedges, in clear contrast to the unhedged roads on the moorland.

2.8 Tin mining has left a range of visible traces in the landscape, from the streamworks on the lower lying marshy ground alongside the A30, to engine houses and shafts on the slopes of Belowda Beacon and Castle-an-Dinas.

2.9 The modern A30 and the Newquay to St. Austell railway line cross the moor, skirting the lower slopes of Belowda Beacon and Castle-an Dinas, and separating the Belowda and Tregoss field systems.

Documentary Evidence

2.10 The following background documentary and cartographic information is reproduced with modification from the Cornwall Archaeological Unit study of the route of the

route corridor (CAU 1997).

2.11 Belowda and Tregoss lie within the parish of Roche in Pyder Hundred and in 1086 the land probably fell within the Domesday manor of Tremodrett. The entry for Tremodrett in Domesday Book gives the impression of an extensive estate which presumably included large areas of pasture on Goss Moor.

2.12 The identification of early medieval settlement through place-name analysis suggests that both Tregoss and Belowda may have pre-Norman origins. Tregoss includes the prefix *Tre-* which usually refers to a farming estate; Belowda includes the prefix *Bod-* or *Bos-* which indicates a house or dwelling. Tregoss is first mentioned in documentary sources in 1210; Belowda first appears as *Bellonde* in 1275.

2.13 Tremodrett also included lands at Holywell in 1242 and the alleged location of an ancient chapel of indeterminate date at this small settlement hints at a possible pre-Norman site in this area. Earlier this century Charles Henderson noted the well-preserved holy well at this site and, in assessing the fragments of masonry lying around the farmyard, suggested that the former chapel (no remains of which have survived) was likely to have been at least 15th century in date (Henderson 1960, 427).

2.14 The rich tin-bearing deposits on Goss Moor have been exploited since at least the early 14th century (some level of exploitation since prehistoric times is likely but unproven). In the Patent Rolls of 1309 it is stated that one of the major landowners (the parson Ralph de Arundell) took refuge in the Parsonage at St.Columb from an angry mob of tinners from the villages of Ruthvoes and Trevarren, on whom a levy for unpaid dues had been imposed (Henderson 1930, 9). The Manor of Gaverigan, situated on the edge of Goss Moor, was in the patrimony of the Gaverigan family in 1361, and Walter Gaverigan is known to have made a small fortune in tin. An advertisement in the West Briton in 1835 mentioned 'no less than five alluvial tin setts in this neighbourhood....the largest of these appears to have been the Mingam Sett, which was stated to have been producing tin for more than 300 years' (Hamilton Jenkin 1964, 57). That tin-streaming played an important role throughout the post-medieval and earlier periods is also evident in large expanses of ground described as streambanks or tin park in the 1839-1840 Tithe Apportionment Schedules.

2.15 The 19th century Tithe Apportionment Schedule shows that enclosed land was both arable and pasture in 1839-1840, reflecting a mixed farming regime typical of the general area since the medieval period.

Cartographic Evidence

2.16 There are no major settlements shown on John Norden's map of the area in 1597 - the only major landscape feature being *Castle-an-Dynas* (Castle-an-Dinas) and the expanse of *Gosmore* (Goss Moor).

2.17 On Gascoyne's map of Cornwall (produced in 1699, published in 1733) a route across this landscape was shown. To the west this 17th century route closely followed the line of the present A30 from *Penhaile* (Penhale) and *Fradham* (Fraddon), but as it ran eastwards the route swung away from Goss Moor through the settlement of *Belovedy Als Belowsey* (Belowda). On leaving Belowda the road then swung downslope and through land at Holywell and Victoria (neither place is marked on the map) after passing an apparent major junction at the location of the barrows at present-day Saffron Park. It then ran up-slope and northwards behind an area of land called Red Tye and northwards towards Lanivet. Gascoyne's map reflects an accurate picture of the Cornish routeway system in the 17th century and, following recognised

conventions of the day, depicted the sides of the roads with solid lines where the highway was hedged and used broken lines in places where it was unhedged (Padel 1991, 27). Gascoyne shows the road across the moors as open, except the section which passed through Belowda, which he shows as hedged.

2.18 Martyn's map of 1748 shows quite clearly the route depicted by Gascoyne. This later map adds a few more names to locations such as *West Lane End* and *East Lane End,* to the west and east of *Belovely* (Belowda) and seems to mark the ends of the hedged section of the highway as it traversed the settlement. These places also feature on the Ordnance Surveyor's early plans of the area (which date to the 1810s), although by this time most of the course of the present A30 highway had become established. The road over Goss Moor formed part of a major highway through the county, which was formally listed as a turnpike in the latter part of the 18th century. This comment made by an anonymous diarist in 1795 suggests that the new road line was established by that date, as it seems unlikely to apply to the narrow, hedge-lined lane passing through Belowda:

"Bodmin to the Indian Queen - 11 miles of most excellent road mostly upon a level. All moorland, not a tree to be seen on this road." (Spreadbury 1971, 9)

2.19 The earlier 17th century highway mapped by Gascoyne was still a significant lane serving the settlement of Belowda. To the east, the early 19th century course of the highway continued in a more linear fashion beyond the area which was at that time known as Gregland, but today is called Mount Pleasant. On present day maps this road, which runs behind the back of Red Tye and through the hamlet of Colbiggan, is called "the Old Coach Road". The earlier 17th century highway mapped by Gascoyne continued to serve the settlement of Belowda.

Archaeological Evidence

2.20 There is no evidence of Palaeolithic (up to c.9000 BC) or mesolithic (c.9000 - c4500 BC) activity in the study area.

2.21 The Neolithic period (c.4500 - c.2000 BC) is represented in the near vicinity by the ritual complex at Castilly Henge. Later prehistoric sites at Castle-an-Dinas and St. Dennis may conceal evidence of Neolithic activity, and excavation work may be expected to reveal evidence for neolithic activity.

2.22 The Bronze Age (c.2000 BC - c700 BC) ritual landscape can be seen in the burial mounds at Saffron Park and Innis Downs, and barrows on top of Castle-an-Dinas. Contemporary settlement evidence may be expected in association with the visible burial mounds, although not necessarily in close proximity. It is likely, but unproven, that mineral resources were being exploited in this period.

2.23 The Iron Age (c 700 BC - c 50 AD) is represented by the major monument at Castle-an-Dinas, and St. Dennis may have been occupied at this time as well. There is currently no other evidence for settlement or other Iron Age activity in the Goss Moor area. Again, it is likely, but unproven, that mineral resources were being exploited.

2.24 Evidence for Roman activity is limited to possible occupation on Castle-an-Dinas. It has been suggested that the A30 follows the line of a Roman road, but there is no archaeological evidence for this and the modern alignment was not established until the late 18th or early 19th century.

2.25 Physical evidence for the early medieval period (c.AD400-1000) is not represented

within the A30 study area, although, as noted above, the place names Tregoss and Belowda suggest a possible pre-Norman origin for these settlements.

2.26 Tin-streaming works on Goss Moor form an important archaeological component of the landscape and may be the key to understanding the development of settlement in this area. The documentary evidence demonstrates that communities of tinners were established on Goss Moor by at least the early 14th century. As no systematic investigation of the streamworks has been carried out, it is unsurprising that there is no corresponding archaeological evidence for tin-streaming before the medieval period.

2.27 In the medieval period (c.AD1000 - 1530), Belowda, Tregoss and Holywell were established settlements, with an ancient chapel at Holywell. Other sites which may date from the medieval period include the field boundaries defining the Belowda and Tregoss fields, possible medieval ridge and furrow surviving halfway between the Iron Bridge and the House on the Common (Tregoss), and recorded tin mining and associated settlements on Tregoss Moor.

2.28 In the post medieval period (c.AD1530 – 1850) more small settlements sprang up, many associated with tin extraction, others with small agricultural holdings, some of which have subsequently become deserted. The present routes across the area were established by the end of the post medieval period, although the majority of the line of the modern A30 was not in place until the late 18th or early 19th century.

2.29 Tin mining continued into the modern period (after 1850) and deserted mining features of this latest period of tin extraction are very visible in the landscape. Many of the smaller farmsteads and holdings have since become deserted and buried archaeological traces of them may be present in the area.

2.30 The railway line was originally a horse drawn minerals tramway built in the 1850s, converted to locomotive power in the 1870s before being absorbed into the Great Western Railway and used for passenger travel in the development of Newquay's tourist potential in the 1880s.

3.0 Previous Studies

Cornwall Landscape Assessment 1994: Historic Character Landscape Zones

3.1 The Belowda-Tregoss area encompasses three Landscape Zones, as defined by the Cornwall Historic Landscape Characterisation (Landscape Design Associates in association with Cornwall Archaeological Unit, 1994, on behalf of the Countryside Commission). These are:

3.2 Anciently Enclosed Land (AEL): AEL is characterised by farming settlements documented before the 17th century AD and irregular field patterns with either medieval or prehistoric origins (rather than the straight-sided fields of later enclosure). AEL tends to be on relatively sheltered land, not too steep and not too poorly drained, but can extend onto the high downs. It consists of land cleared and improved in later prehistory or in the early medieval period and re-organised in the later medieval period into extensive 'strip' field systems. AEL is the most common Cornish landscape character classification.

3.3 The majority of the enclosed agricultural landscape of Cornwall is derived from the layout of medieval cropping units (sub-divisions of open-fields comprising a bundle of strips, usually on the same alignment and planted with the same crop) - designated

Landscape Type 8a. The proposed road alignment cuts through the Tregoss and Belowda field systems, which, while broadly classified as AEL, are considered to be particularly good examples of fossilised medieval strip-fields (Type 8b) (see Hooke D, 1998, p224, fig.73). This type is considerably less common than Type 8a and is derived from the enclosure of individual strips in the former open-field.

3.4 Recently Enclosed Land (REL): REL is identified by fields having straight sides and often hedges or walls which have less mature or varied vegetation cover. The land was enclosed in the 18th, 19th or 20th centuries, usually from medieval commons on Upland Rough Ground, and so is generally in relatively high, exposed, or poorly drained parts of the county. Although some of this zone was enclosed in the second half of the 18th century and in the 20th century, the greater part was taken in from rough ground during the 19th century.

3.5 The majority of the area that would be crossed by the proposed road is REL taken in from formerly uncultivated Upland Rough Ground. The large fields with straight boundaries on Belowda Beacon are a typical example. Up until the 19th century this land would no doubt have been used in common by the inhabitants of the Belowda settlement as rough pasture.

3.6 Upland Rough Ground (URG): This landscape zone is represented in the Belowda-Tregoss area by the expanse of marshy, rough moorland of Goss and Tregoss Moors. Palaeo-environmental analysis has shown that woodland cover extended onto many of the upland areas of Cornwall until at least the Neolithic, when early farmers began to clear the land for agriculture (this is likely to be true of the Goss Moor area, but is at present unproven). Deterioration of upland soils caused by farming and erosion, led to the abandonment of the upland areas for permanent settlement by prehistoric communities by the late Bronze Age (c.1000 BC). The uplands stabilised as open, heathy or marshy moorland, largely unenclosed and typically used as pasture and fuel-grounds. Up until the mid 18th century Upland Rough Ground included most of the Cornish moorlands. The 18th and 19th centuries saw the enclosure of large expanses of moorland to provide small-holdings for a growing population of miners and agricultural workers (becoming Recently Enclosed Land). Upland Rough Ground is typically open moorland with semi-natural vegetation cover and numerous visible archaeological remains, typically including prehistoric earthworks such as barrows, and the remains of mine workings (Landscape Design Associates, 1994).

Previous A30 Assessment Surveys

3.7 The SMR data identifies 36 SMR entries within a corridor approximately 1km wide centred on the existing A30. The CAU 1997 study of the road corridor identifies a further 110 sites in this area. The historical background section of this working paper is largely drawn from the CAU desk-top assessment of the A30 route corridor. Survey work in the Belowda section classifies the component boundaries of the field system by type, and indicates the position and general morphology of streamworks and associated visible remains (CAU 1997).

Transco Maudlin to Indian Queens Gas Pipeline

3.8 Evaluation and watching brief investigations were carried on this pipeline route, which closely follows the proposed A30 alignment in the Belowda section. Although drawings of the watching brief results are not yet available, preliminary results broadly confirm the presence of significant buried prehistoric and medieval archaeology in the Belowda section (Network Archaeology, March 2001).

Topographical Survey

3.9 A topographical survey of the Belowda Field System recently completed as part of the A30 Environmental Assessment, was carried out with the aim of identifying visible archaeological features that may be at risk by the construction of this section of the road improvement (RPS, June 2002). The survey builds on earlier field reconnaissance by CAU which classified the up-standing boundaries according to type. The survey recorded evidence for a former field boundary and a track on the eastern boundary of the strip field system. Other features recorded included a naturally occurring bank, a modern pond and a circular feature of unknown date, none of which were considered of archaeological significance.

Watching Brief on Geotechnical Test Pits

3.10 Over the period October – December 2001, the main ground investigation for the A30 Bodmin to Indian Queens Improvement was completed under the direction of Parkman. Up to 60 trial pits investigated as part of the ground investigation were observed by CAU archaeologists working under instruction from RPS Consultants. Observations from this work may assist in defining the archaeological approach to the Scheme assessment. Results indicated that 3 test pits out of the 60, exposed archaeological features of any possible significance. Features included an unidentified stone feature within the Belowda field system (TP32) and a number of field boundaries (those in TP 45 - East of Saffron Park and TP 102 -West of Mount Pleasant are thought to be components of a pre-19th century field system). TP 73 encountered possible traces of medieval ridge and furrow. Possible mining prospecting pits were identified in TP45, TP46C, TP47E (South of Royalton Mine), and a shallow mining adit at TP58.

4.0 Historic Landscape Assessment

Principal Historical Processes

4.1 Up until at least the 11th century it seems likely that the Belowda and Tregoss areas were unenclosed moorland, forming part of Goss Moor. In spite of the proximity of Castle-an-Dinas and the attraction of rich tin deposits, there is no evidence for prehistoric enclosure of the landscape, although excavation might change this picture. Castle-an-Dinas may be seen as a means by which late prehistoric rulers controlled the main routeway through west Cornwall and access to the rich mineral resources of the area, rather than necessarily a focus of permanent settlement. Core prehistoric settlement areas are more likely to be found in the lower-lying areas to the north, east and west, as indicated by discoveries during construction of the Indian Queens by-pass (Nowakowski 1994 and 1997). Nevertheless, Bronze Age barrows are present on Belowda Beacon and at Saffron Park, and might reflect an extended phase of prehistoric clearance and upland colonisation, similar to that evidenced on Bodmin Moor. Only excavation and the recovery of palaeoenvironmental data can address these issues.

4.2 The place-name evidence hints at a pre-Norman origin for the settlements at Tregoss and Belowda, and an 11th century or even earlier date seems possible, although there is no documentary evidence for settlement of this area until the mid-13th century.

4.3 Historical processes affecting the development of the Belowda landscape may be summarised as follows:

- Development of major routeways

4.4 The position of Goss Moor on the main routeway into west Cornwall has clearly affected the development of the landscape. It has been suggested that the A30 is on the line of a Roman road and may have its origins in a prehistoric ridgeway route, although there is no archaeological evidence to support this assertion. It is arguable whether the medieval settlement at Belowda was established on the line of an existing, defined routeway, or whether the preferred route for travellers over Goss Moor, in shifting over time, came eventually to follow a track through the settlement. The latter is perhaps the more likely option.

4.5 The establishment of the present line of the A30 in the late 18th or early 19th century, and the railway in the 1850s (originally as a horse-drawn minerals tramway) reflects the increased intensity of mineral extraction between the mid-18th century and the early 20th century. While tin-mining went into terminal decline in the course of the 20th century, the development of tourism from the 1880s meant that the both road and railway remained important strategic routes into west Cornwall. The proposed A30 Improvement demonstrates the continuing importance of the route.

- Medieval population expansion and upland colonisation

4.6 The establishment of permanent settlements on Goss Moor is likely to have been driven by the same social and economic forces that led to the colonisation of Bodmin Moor, broadly between the 11th and 14th centuries (although dating evidence is extremely limited). This episode is seen as resulting in part from relaxation of rigid manorial control over rights to common grazing on the moors, and in part from population growth and economic expansion in England as a whole during this period (Johnson and Rose, 1994). Goss Moor may have been subject to earlier and more stable settlement than Bodmin Moor due to the attraction of the rich tin-bearing deposits, and the relative proximity to agriculturally productive lowland areas.

- Late medieval population contraction and the decline of strip-cultivation

4.7 In general terms, the defining characteristics of medieval strip- or open-field cultivation include:

- the division of land around a nucleated settlement into a multitude of strips, the strips of each farmer being distributed either regularly or randomly around the fields;
- strips grouped into cropping units (furlongs), and cropping units grouped into fields which were sown with the same crop in each furlong. Some tasks were shared co-operatively among groups of farmers. Each field was subject to a system of crop rotation, being left fallow every second, third or fourth year;
- fields used as common grazing when not in cultivation;
- rare hedged boundaries, with few enclosed circuits, to allow free movement of livestock between strips. The strips may originally have been defined by plough action alone (forming ridge and furrow) low banks or other insubstantial boundaries (Rackham, 1986).

4.8 There is evidence that open-field cultivation was a widespread feature of Cornish agricultural practise in the medieval period, up until the late 14th century when major social and economic changes, caused at least in part by the Black Death, led to the replacement of open-field cultivation with individual farms and the gradual enclosure of the open-fields between the 14th and 17th centuries (Johnson and Rose 1994). The reorganised fields were now typically defined with substantial, stock-proof hedged

boundaries (Cornish hedges) rather than the earth banks or other insubstantial boundaries characteristic of open-field cultivation. Where this process is documented elsewhere in England, prior to the Enclosure Acts, it was typically achieved by exchanges of strips between individuals to make single blocks of land.

4.9 In Cornwall the pattern of enclosure varied according to local circumstances. Most commonly, the enclosed fields were co-terminous with the cropping units or furlongs (formerly sub-divisions of the open-field comprising a bundle of strips, normally on the same alignment). This form of enclosure is designated Landscape Character Type 8a. The strip-field pattern (Landscape Character Type 8b) was most likely to survive where large hamlets had difficulty re-arranging complex landholding arrangements (Herring and Rose 1994). This may be a contributory factor to their survival at Belowda, given the small size of tinners small-holdings and possible complications in landholding arising from connections with tin-streaming rights.

4.10 This phase of enclosure occurred earlier than in large areas of the Midlands and Northern England, where open-field cultivation continued until the Enclosure Acts of the 18th and 19th centuries. A similar general sequence may be seen in other areas, such as County Durham and the Sussex coastal Plain, but the use of substantial stone-faced earthen banks (Cornish hedges) as boundaries has contributed to an unusual degree of landscape fossilisation in Cornwall (Rackham 1986).

- The development of a mixed tin-streaming-farming economy

4.11 Streaming for tin is likely to have been at least as important, if not considerably more important than farming, as a source of income for small-holders of the Belowda and Tregoss settlements, over many centuries. Exactly when tin-streaming started in the area is open to question, but there is no doubt that the deposits were continuously worked from at least the 13th century until the early 20th century, leaving a considerable legacy in the landscape. The possibility of prehistoric and Roman exploitation of these deposits is often postulated but, in the absence of systematic excavation, remains unproven.

4.12 The rich alluvial tin deposits were clearly a primary attraction for settlement in an area that is marginal in terms of agricultural productivity. The wealth of the tin deposits in the Goss Moor area may have ensured the continuing viability of these settlements at times when other upland settlements were being abandoned or reorganised into individual farmsteads. Fluctuations in demand must have had an impact on the tinners, but the stability of the Belowda-Tregoss landscape suggests that the main settlements were not subject to the periodic abandonments seen on Bodmin Moor, for example. However, some abandoned individual farmstead sites are known from cartographic sources and excavation has the potential to add further examples.

4.13 This relative settlement stability, combined with the secondary importance of agriculture as a means of subsistence, may have contributed in some way to the fossilisation of the medieval strip-fields in the landscape. It is also possible that the small size of individual plots held by tinners led to unusually complex patterns of land-holding, resulting in the enclosure of small groups of strips, rather than whole cropping units.

4.14 By contrast, in more productive lowland areas of Cornwall, a greater level of agricultural specialisation has resulted in continuous rationalisation of fields, typically eroding the original form of the enclosures, sometimes beyond recognition.

4.15 At the other extreme, medieval-post-medieval upland settlements on the edge of Bodmin Moor provide evidence for frequent reorganisation, including a general change from hamlet organisation to individual farmsteads in the 14th-18th centuries, with numerous cases of settlement shrinkage or abandonment. These settlements may have been more reliant on barely viable agricultural land than the mixed tinning/farming communities of Goss Moor, and were, therefore, more sensitive to short-term economic changes. Their associated strip-field systems, therefore, often survive only in relict form, albeit with some elements occasionally incorporated into the modern moorland landscape (e.g. Tresellern and Fernacre on Bodmin Moor) (Herring and Rose, 1994).

- Industrial Revolution

4.16 The increasing intensity of mineral extraction from the mid-18th century onwards, as a result of the Industrial Revolution and general population expansion, is reflected in the development of deep-mining, as evidenced in the landscape by the ruins of engine-houses and mine workings on Belowda Beacon and Castle-an-Dinas. Commercial stream-working on Goss Moor also continued into the early 20th century (Collins 1909). The China Clay waste tips dominating the skyline to the south provide further spectacular evidence of this major phase of landscape development.

- Agricultural Revolution

4.17 In parallel with the Industrial Revolution, in the 18th and 19th centuries, large areas of commons passed into private ownership under the Enclosure Acts. The aim of such enclosures was often to improve the land to make it suitable for agriculture, and this was certainly the motivation for enclosing the upland pasture of Belowda Beacon and Castle-an-Dinas, to provide small-holdings for an expanding population of tin-miners. Goss and Tregoss Moors were no doubt too marshy to be considered for improvement.

Historical/Archaeological Components and Features

Medieval Landscape Components

4.18 Key component elements of the medieval landscape are as follows:

- The main settlements of Belowda and Tregoss, which are organised as nucleated hamlets rather than individual farmsteads. The earliest documentary evidence for the settlement at Belowda dates from 1275; Tregoss is first mentioned in 1250. However, a pre-Norman origin for these settlements is suggested by the place-name evidence (see para 2.12 above);
- Strip-fields surrounding Tregoss and Belowda. Some elements of the Cornish hedge boundaries may be of medieval origin, but the medieval form of the boundaries is likely to have been much been less substantial. In Cornwall as elsewhere in England, strip- or open-field cultivation was characterised by large open fields, sub-divided into furlongs and strips with few hedged boundaries, to allow free passage of livestock during fallow seasons. The dating of the field system to the medieval period relies at present on morphological comparisons with relict medieval settlements and their fields, recorded in upland areas such as Bodmin Moor, and by analogy with well-documented examples of strip-cultivation elsewhere in England. Gascoyne's map of 1699 implies the presence of a hedged landscape at Belowda, but there is no earlier documentary evidence for the field system (as opposed to the settlement). The presence of hedged boundaries in 1699 would imply that the process of enclosure, and therefore the

replacement of communal by individual farming, was complete by that date;

- Enclosed meadows along the southern edges of the Belowda and Tregoss strip fields, forming an integral part of each field system;
- Tin-streaming works on the lower-lying ground to the south of the Belowda field system. There is documentary evidence that tin-streaming was the major occupation of the community at Ruthvoes, on the western edge of Goss Moor, in 1309 (Henderson 1930, 9) and it is likely that the inhabitants of Belowda and Tregoss were also tinners first and farmers second;
- Areas of Recently Enclosed Land on Belowda Beacon, formerly upland rough pasture and used in common by the settlements in the area prior to enclosure in the 19th century;
- Goss Moor and Tregoss Moor - also common land used as rough pasture, probably left unenclosed in the 18th/19th century because of the marshy nature of the ground.

Post-medieval Landscape Components

4.19 In addition to these surviving or fossilised components of the medieval landscape, many of which continue with minor modification into the post-medieval period, key archaeological elements arising from intensification of mineral extraction in the 18th and 19th centuries include:

- Areas of Recently Enclosed Land on Belowda Beacon, enclosed in the 19th century to provide small-holdings for an increasing population of tin miners;
- Individual farmstead sites set in areas of REL and on the edge of the Belowda AEL, such as Higher Trenoweth and Lane End, which must have originated in the 18th and 19th century as tinners homesteads;
- the deep mine shafts and engine houses on the slopes of Belowda Beacon and Castle-an-Dinas;
- the Newquay to St. Austell railway, which was first established in the 1850s as a horse-drawn tramway for the transport of extracted minerals. The establishment of the present line of the A30 may also be seen as connected with this major post-medieval phase of landscape development.

Coherence

4.20 The landscape of Belowda and Tregoss comprises a number of distinctive archaeological elements that, when viewed as a whole, appear to represent an unusually complete and coherent survival of an early medieval settlement pattern into the modern landscape. The preserved outline of strip fields surrounding the hamlets of Belowda and Tregoss are just one element of this pattern. Tin-workings, marshland and upland pasture all formed an integral part of the medieval settlement pattern.

4.21 However, it should be noted that the Cornish hedges that have preserved the strip pattern so effectively, also obscure the 'open-field' character of the landscape as it would have been in the medieval period. In terms of archaeological coherence, the landscape is perhaps more 'typical' of the post-medieval Cornish Landscape (c 1500-1750) than the medieval.

Rarity

4.22 No systematic survey of medieval strip fields in Cornwall has yet been carried out. However, extensive work by the Cornwall Archaeological Unit, including the Historic Landscape Character Zones mapping, allows reliable general comments to be made on the rarity of field systems derived from strip-fields within the county.

4.23 The practise of strip-cultivation was apparently comparatively rare in Cornwall by the end of the 16th century, and had all but disappeared by the 17th century. Richard Carews Survey of Cornwall, dating from the 1590s says that

4.24 'since the grounds began to receive enclosure and dressing for tillage the nature of the soil hath altered to a better grain..... These [the husbandmen] in times not past the remembrance of some living rubbed forth their estate in the poorest plight, their grounds lay all in common, or only by stitchmeal' (Baldwin, n.d).

4.25 However, the strips themselves occasionally survived as visible landscape features in more or less unaltered form as late as the 19th century, and one case, the Forrabury Stitches, also demonstrates a remarkable survival to the late 20th century of some elements of the communal farming practises essential to strip-field cultivation (Wood, 1963). A series of excavations in the parish of Gwithian, on the north coast of west Cornwall, have provided important archaeological evidence for the origins and practise of strip-cultivation in that part of Cornwall (Fowler and Thomas, 1962).

4.26 In marginal upland areas subject to frequent settlement abandonment, such as Bodmin Moor, medieval strip-fields survive in a number of cases as visible archaeological monuments (Herring and Rose 1994). Much of the present knowledge of medieval upland settlement in Cornwall is derived from excavated deserted medieval settlements on Bodmin Moor, at Trewortha Marsh, Goosehill, Garrow and Stuffle (Preston-Jones and Rose, 1986).

4.27 Medieval strips have frequently become fossilised in the modern landscape of Cornwall, although in more productive and 'typical' agricultural areas, the patterns are commonly eroded by the removal of hedges and ploughing, leaving Belowda and Tregoss as outstanding examples of the type within the region.

4.28 A recent study of field systems of the Lynher area, in south-east Cornwall, which is typical of much of Cornwall's Anciently Enclosed Land, indicates a relatively low proportion of strip-derived systems, the largest part of the agricultural landscape being derived from medieval cropping units (Herring, pers. comm.):

- Type 8a - Derived from medieval strip fields - 782ha (2.5% of the study area) in 2001, 1629ha (5.3%) in c1880;
- Type 8b - Derived from medieval cropping units - 14497ha (47.2%) in 2001, 17648ha (57.4%) in c1880;
- Type 8c - Barton farms - 641ha (2.1%) in 2001, 671ha (2.2%) in c1880;
- Type 8d - Irregular field patterns 6ha (0.02%) in 2001, 15ha (0.05%) in c1880.

4.29 At a national level, open-field cultivation was once extremely widespread. The Enclosure Acts, between 1720 and 1840, covered about four and a half million acres of open-field, one-seventh of England. Already, by that time, open-field cultivation had disappeared from a number of regions in which it had once been common, including County Durham and the Sussex coastal plain, as well as Cornwall (Rackham 1986, 170).

4.30 Nationwide, survivals of the communal farming arrangements that characterise open-field cultivation are extremely rare, the best-known example being Laxton (Notts) where some of the traditional arrangements governing the use of sub-divided arable survived into the late 20th century (Rackham 1986, 164). Cornwall has its own notable survival of this type in the Forrabury stitches, cited above. There is no

indication of any such survival in the case of Belowda and Tregoss.

4.31 The physical traces of medieval strip-cultivation have more often survived parliamentary enclosure, with well-known examples including Laxton (Notts), Haxey (Lincs) Soham (Cambs) Portland (Dorset) and Braunton (Devon). But these are the exception rather than the rule and enclosure combined with modern farming methods have been very effective at obliterating traces of medieval strip-cultivation in many parts of the country. However, ridge and furrow, which is a particular characteristic of the midlands and north of England, is a durable indicator of former open-field cultivation that also occurs in Cornwall.

Survival

4.32 In Cornwall, the custom of enclosing plots within former open-fields with substantial stoned-faced banks (Cornish hedges) mainly between the late 14th and 17th centuries, appears to have resulted in an unusual degree of stability in field systems, so that, once enclosed, the field patterns have become fossilised in the landscape, surviving long after the social systems that created the original pattern have disappeared.

4.33 Against this background the Belowda and Tregoss field systems represent an unusually coherent fossilisation of the medieval settlement pattern within the modern landscape. As discussed above, the special circumstances of these settlements (the mixed mining/farming economy and marginal upland location) may have contributed to the survival of the strip pattern. The tin-streaming sites on the moorland to the south of Belowda are an integral part of the pattern, although post-medieval and modern streamworks, and the construction of the present A30 and the railway, will no doubt have caused very considerable disturbance to traces of medieval and possible earlier tin-workings.

4.34 It is important to note that the area is not an unaltered survival of the medieval landscape. It has been subject to continuous modification in response to the main historical processes identified above. The topographical relationships between strip fields, rough upland pasture and tin-streaming sites survive, but important changes have occurred since the medieval period that have fundamentally changed the character of the landscape. For example, surviving medieval elements of the Belowda Field System include the general pattern of the bundles of strips, but not the form of the boundaries, which would have been much less substantial, if present at all, in the medieval period.

4.35 Some truncation at the southern edge of the Belowda system has occurred, probably when either the road or railway were built. The straight boundary alignment that now marks the southern edge of the fields clearly relates to these features. Comparison with the southern edge of the Tregoss field system suggests that the medieval and post-medieval boundaries would originally have extended as far as the stream located to the south.

Past Interaction with Other Landscape Zones

4.36 The Belowda and Tregoss field systems (AEL Type 8a) formed the agricultural heart of the settlement. However, the tin-streaming sites, located in Upland Rough Ground in the marshy areas of Goss and Tregoss Moor (URG), may have been of equal or greater economic importance to the inhabitants of Belowda throughout the medieval and post-medieval period. The marshy moorland may also have been used as rough grazing in the summer, although the dryer moorland of Belowda Beacon and Castle-an-Dinas may have been more favoured in this respect.

4.37 The intensification of mineral extraction in the 18th and 19th centuries led to the development of deep mining on the slopes of Belowda Beacon and Castle-an-Dinas. At the same time, landlords enclosed these areas of former common pasture to create small-holdings for the growing population of tin miners. The new enclosures were laid out with straight, surveyed boundaries characteristic of Recently Enclosed Land (REL).

4.38 The town of Roche appears on the early 19th century 1st edition OS map (*Roach*) as little larger than the settlements at Belowda and Tregoss, with which it may have had much in common in the medieval period. The town expanded in the 19th century in parallel with the great increase in tin-mining and china clay extraction. It provided a local market centre, catering to the particular needs of the mixed farming/mining communities of the area.

Time-depth

4.39 A major part of the interest in the Belowda and Tregoss field systems lies in the juxtaposition of three landscape character types (AEL, URG and REL) within the catchment of the small group of settlements which includes Tregoss and Belowda. Each zone reflects, to some extent, one of the major episodes of landscape development that have affected the area since prehistoric times.

4.40 Only excavation can show the extent to which prehistoric settlement extended into this upland area. The remains of barrows at Saffron Park and Castle-an-Dinas may indicate that, as on Bodmin Moor, Bronze Age and possibly earlier settlement and ritual activity was intense. Castle-an-Dinas is a highly visible reminder of the importance of this area to later prehistoric communities.

4.41 However, from the later prehistoric period until the 11th century it is likely that this area was open moorland, no doubt grazed in common by nearby communities, but (on present evidence) left unenclosed and unimproved. In the medieval and post-medieval period the moors were the location of numerous tin-streaming sites and it is possible (though unproven) that such operations have been a feature of the landscape since the Bronze Age. The Tregoss and Belowda Strip fields (AEL) reflect early medieval colonisation of the moorland, probably in connection with an intensification in tin streaming at that time. The enclosures on Belowda Beacon and Castle-an-Dinas (REL) reflect the further intensification of land-use on the moors which accompanied the 18th and 19th century growth in mineral extraction. The decline of the mineral extraction industry from the early 20th century has resulted in the settlements of the area reverting to a purely agricultural economy, perhaps for the first time since the Bronze Age.

4.42 The main settlements of Tregoss and Belowda are substantial hamlets, characteristic of the early medieval settlement pattern in Cornwall. The buildings of the settlement are invariably later in date, ranging from the 17th to 20th century. There are some outlying individual farms located in areas of REL, including Lane End and Higher and Lower Trenoweth, which must in origin be 18th and 19th century miners small-holdings.

Contribution to Landscape Character

4.43 The change in landscape character between the open, gorse-covered expanses of Goss Moor on one hand, and the enclosed landscape of the AEL surrounding Belowda on the other, is clearly apparent from the slightly embanked A30, although in summer

the vegetation of the hedges obscures the distinctive strip-field pattern from view to some extent. The contrast between the large open fields of the REL on the slopes of Belowda Beacon is no less marked. These contrasts break up the monotony of the moorland landscape and permit an understanding of the gradual morphological changes caused by evolving agricultural practices and regional economic and social change.

Anciently Enclosed Land

4.44 Enclosed land largely defines the character of the areas where it exists, and the maturity of the AEL, compared with REL, is apparent to most observers. The high cornish hedges and sunken lanes surrounding Belowda, so characteristic of AEL, limit visibility and stifle background noise from traffic, creating an almost claustrophobic atmosphere while driving or walking down the lanes. The hamlets are now residential settlements with few remaining farming families, and few remnants of the former dependence on mineral working other than the physical traces in the surrounding landscape. The settlement of Belowda is hidden from view from almost every viewpoint until you reach the first houses, and it is possible to pass through the hamlet without seeing a single person. Farm gates offer brief views into the long strip fields extending south from the lane though the hamlet.

Recently Enclosed Land

4.45 Leaving the field system, northwards along the public footpath to Belowda Beacon, one emerges quickly onto Recently Enclosed Land, which has a much more open, exposed character, although views are often restricted by the characteristic long, straight hedgerows, laid out with military precision by 19th century surveyors. Although originally enclosed to form subsistence farming plots for tin-miners, the REL above Belowda is now under permanent pasture, reflecting the 20th century decline in the tin industry and consequent abandonment of tinners small-holdings. The REL on the slopes of Castle-an-Dinas and Belowda Beacon is studded with ruined mine engine houses, which, along which the china clay waste tips that dominate the skyline to the south, are even more obvious reminders of the dynamic industrial past that transformed the inhabited landscape of Goss Moor between c1750 and c1950. They are also stark reminders of more recent shifts in economic fortunes, and consequent social changes, that have seen the area revert to an almost entirely agricultural economy, perhaps for the first time since the Bronze Age.

4.46 Typically, REL in Cornwall is viewed as only very subtly different from AEL, except in post-war enclosures. However, the REL on the southern slopes of Belowda Beacon, with its characteristic long, straight field boundaries and large fields, contrasts very sharply with the unusually narrow, strip-derived fields in the AEL surrounding Belowda hamlet. The lanes are not sunken and the hedgerows appear markedly less mature than those in the adjacent AEL.

Upland Rough Ground

4.47 Now distinguished mainly by habitat/ ecology from surrounding enclosed/improved ground, the URG of Goss Moor is a gorse-covered expanse of open land. The rather desolate view southward from the A30 is increased by the backdrop of the china clay waste tips to the south of Goss Moor. Typically, the impact of human action on this landscape zone is underestimated and the zone is often regarded as largely 'natural'. In fact the URG may have the longest history of human interference/ utilisation, with its principal attributes, impoverished soil supporting essentially heath/scrub vegetation communities, being a product of prehistoric human intervention,

maintained through medieval and early modern land use systems. Traces of tin-streaming works are also widespread on Goss Moor, the most recent phases visible as overgrown earthworks.

Values and Perceptions

4.48 Partly because of the very obvious legacy of mineral extraction in the surrounding area, in particular the china clay extraction waste heaps that dominate the skyline to the south of the A30, this area is undervalued in terms of historic landscape. Tourists pass through the area rather than regarding it as a destination in its own right, in spite of the potential attraction of the major prehistoric monuments and the rich industrial heritage.

4.49 This is fairly typical of attitudes to AEL, which tends to be rather taken for granted until damage or destruction makes people aware of its importance in their lives. Its value as an apparently 'timeless' heartland, reassuring and strengthening those who pass through it is then appreciated. It is doubtful whether many people understand its long and complex evolution, but most will know that this countryside is old, if they take the time to leave the A30 and walk along the old sunken lanes and footpaths of Belowda and Tregoss.

4.50 At present, public consultation with local residents and other groups passing through the landscape (principally commuters from Cornwall, tourist through-traffic using the A30 being under-represented in the consultation responses) indicates that the preservation of landscape character, along with other environmental issues, is regarded as less important than construction of the A30 as soon as possible, with minimum disruption to traffic flows.

4.51 The low relative value attached to the historic landscape in this case may be due to a lack of interpretation to the wider public and a general perception that field systems, which form the everyday framework of agricultural life, are not as interesting or important as obvious and dramatic archaeological monuments, such as Castle-an-Dinas or Castilly Henge.

Documentation

4.52 The early phases of landscape development suggested by surviving prehistoric monuments and medieval landscape features suffer from a lack of specific dating evidence for key archaeological/historical components. The current interpretation rests on analogy with detailed landscape and archaeological studies from Cornwall and elsewhere in England. Only archaeological excavation has the potential to construct an independent, landscape-specific chronological framework for the medieval and earlier phases of development in the Belowda area. Archaeological mitigation should emphasise the importance of characterising and recovering dating evidence for each of the key landscape components identified above.

4.53 The 18th and 19th century phases of landscape development can be traced from cartographic and documentary sources and are, therefore, a somewhat lower archaeological priority, although opportunities should be taken, where reasonably practicable, to obtain an archaeological record of key landscape components.

Vulnerability

4.54 The Cornwall Structure Plan (December 1997) designates Belowda, Castle Downs and Goss Moor as one of 23 Areas of Great Historic Value (Proposal ENV B: Castle

Downs, Goss Moor and Belowda). This provides a significant measure of protection from development in the future, through the planning system.

4.55 Continuing threats to the Historic Landscape are likely to arise from agricultural use: Rationalisation of fields may result in the removal of hedgerows or addition of new boundaries that erode the characteristic strip pattern. The boundaries of the Belowda system have some protection under the Hedgerow Regulations, since they fall within the criteria for determining "Important Hedgerows", as defined under Schedule 1, Part II, 5 of the Regulations. However, the regulations are dependent on landowners informing the local authority of their intention to remove hedgerows, and enforcement may be difficult in practice. The figures from Lynher, quoted in paragraph 4.28 above, show a significant drop in the proportion of strip fields between c.1880 and 2001 suggesting that strip-derived fields are more vulnerable to erosion by removal of hedges than the other types represented in that area.

4.56 Buried archaeological sites, and slight earthworks such as ridge and furrow, are subject to periodic erosion by ploughing.

4.57 In certain areas there may be clashes with other environmental interests (ecological and landscape) seeking to return areas to moorland.

4.58 The impact of the A30 Improvement is discussed below, but it should be noted that under Para 6(h), highways work is one of the categories of "permitted work" that is exempt from the Hedgerow Regulations:

"The removal of any hedgerow to which these Regulations apply is permitted if it is required -
(h) for the carrying out by the Secretary of State of his functions in respect of any highway for which he is the highway authority or in relation to which, by virtue of 4(2) of the Highways Act 1980, he has the same powers under that Act as the local highway authority".

Importance

4.59 The Stage 2 Environmental Assessment concludes that the impact of the road would be 'a moderate adverse impact on a site of county importance (AEL at Belowda)'. During consultation on environmental issues, English Heritage and the Cornwall County Archaeologist expressed the view that the impact of the scheme on the Belowda field system should be considered 'major adverse'. This historic landscape assessment has considered the Belowda landscape and field system in accordance with the assessment procedure advocated by Cornwall Archaeological Unit, in order to resolve this discussion.

4.60 In conclusion, it is clear that, in a regional context, Belowda and Tregoss are outstanding and comparatively rare regional examples of medieval strip-derived field patterns (Landscape Character Type 8b). On these grounds the grading of the site as of County or Regional Importance stands.

4.61 Survival of medieval strip-fields in any clearly recognisable form is also comparatively rare on a national scale. However, there is not sufficient grounds to justify re-assessment of these systems as nationally important archaeological sites. The Belowda strip-fields are *not* largely unaltered survivals of the physical traces of a medieval open-field system, as may be argued for the Forrabury Stitches, or certain of the deserted medieval settlements on Bodmin Moor, or Laxton (Notts) for example. Given the major episodes of enclosure and the expansion of mineral extraction, the

landscape of the area has developed with the times and would, in many important respects, be unrecognisable to the medieval inhabitants of Belowda. Although it is accepted that important buried archaeology could well emerge during road construction, in general it is medieval *patterns* of settlement that survive, rarely the physical remains that are essential for archaeological analysis. The fabric of the Cornish hedges, for example, although an important part of the historic landscape, are not likely to be of early medieval date and do not in general reflect the *medieval* landscape character.

4.62 Against this background, the Scheme may be considered part of the continuing process of landscape development, entirely in keeping with the historic development of the area. Indeed, the construction of the Scheme would provide a unique opportunity to shed light on the key historical processes that have shaped the landscape of Cornwall, through a programme of archaeological investigation.

4.63 In terms of impact, the Belowda field system would not be destroyed by the road construction, although a substantial transect would occur through it (whichever of the two route options is adopted). The pattern would still be visible from the air and, with a sensitive approach to landscaping and interpretation, may be opened to view from the road and thereby brought to the attention of a wider audience.

4.64 On this basis, it is considered that the 'moderate adverse' impact assessment should stand.

5.0 Assessment of the Belowda Alternative Route Options

5.1 Two route options through the Belowda Field System have been considered herein. The Southern Belowda Alternative Route Option reduces the impact on the Belowda Historic Landscape by a small margin by retaining the coherence of the strip-fields. The length of Cornish hedge affected by the southern alignment is also slightly less than the Published Route.

5.2 However, the archaeological impact of the southern alternative on the field system would be at least as great as the Published Route alignment, as it would cut through the small square meadows along the southern edge of the field system and would impinge to a greater extent on the tin-streaming works to the south of the field system, both of which form an integral part of the historic landscape. In addition, the options for opening up the strips to view from the road, as part of a managed interpretation of the historic landscape, would be limited if the southern alternative alignment was adopted.

5.3 On cultural heritage and historic landscape grounds alone, the arguments are marginally in favour of adopting the Belowda Southern Alternative Route Alignment. However, the case is not clear-cut and all other factors, including additional costs, timescale and ecological issues, must be weighed in the balance before reaching a decision.

5.4 On present evidence these other factors outweigh the cultural heritage benefits of the southern alignment, and it is recommended that the Published Route be retained.

6.0 Recommendations for Mitigation

Archaeological Aims and Objectives

6.1 A moderate adverse impact on the visible and buried archaeology of the Belowda landscape is an inevitable result of building the road. A programme of archaeological

work would be required to mitigate impacts, the general aims of which would be to:

- minimise the physical impact of the Scheme on the visible and buried archaeology as far as is reasonably practicable;
- maximise the positive research benefits to be gained from a structured programme of archaeological investigation;
- maximise the positive amenity benefits to be gained from presentation and interpretation of the historic landscape to the public.

6.2 The extensive, dispersed nature of many of the archaeological remains affected by the scheme (prehistoric landscapes, an extensive, fossilised medieval field system, tin workings etc) militates against the adoption of a narrow, site-based approach to archaeological evaluation and mitigation. The development of the detailed design, therefore, favours pre-construction Strip, Map and Sample (SMS) excavation of archaeologically sensitive areas, as part of the enabling works, including the whole of the section through the Belowda field system.

6.3 The research objectives would focus on the following key areas:

- patterns of prehistoric activity in the landscape, particularly in relation to the identified ritual monuments;
- chronology and evolution of the medieval and post-medieval settlement and field system at Belowda;
- distribution and character of historic mining activity, with selective detailed recording of key features, focussing in particular on those features of medieval or earlier date;
- changing environment and economy in all periods, through the recovery of palaeoenvironmental data.

General Archaeological Methodology

6.4 The Archaeological Project Design would include development of a scheme-wide Research Strategy. This would provide a framework for generating a narrative of human inhabitation of the landscape. The fieldwork methodology would make maximum use of current geographic information systems and IT-based archaeological data management techniques. This would enable detailed archaeological work to be focussed on critically selected areas, following initial mapping, sample excavation and rapid on-site assessment of archaeological remains exposed during Strip, Map and Sample excavation (SMS).

6.5 The SMS areas would be selected as a sample, representative of the best-preserved historic landscapes within the route corridor, targeting all areas of known significant archaeology. Remaining areas would be covered by Watching Brief. Provision would be made for more detailed excavation and recording work to be undertaken in critically selected parts of the SMS areas, if necessary.

6.6 It is considered that the Transco pipeline data provides evaluation data that sufficiently demonstrates the range, density, complexity and date of archaeological deposits to be expected in the immediately adjacent sections of the A30 corridor. Ground investigation data from the A30 corridor provides necessary additional data on average depth of overburden sealing archaeology.

6.7 Precise areas subject to SMS excavation would be designated in the light of the detailed engineering design, but are expected to include the whole of the Belowda and adjoining Saffron Park sections of the route, a continuous length of 2.45km, with

an average working width of c.40m (c. 9.8 ha).

6.8 Specific mitigation measures would include controlled sections through the Belowda field boundaries to allow detailed recording and the recovery of dating evidence, if present.

6.9 All stripped areas of the route would be subject to landscape generic archaeological survey, resulting in a digital plan of all features. All stripped areas of the route would be subject to limited landscape generic sample excavation, designed to recover artefactual dating evidence from key features. Selected feature complexes would then be subject to further landscape generic excavation, designed to resolve stratigraphic relationships. Finally, following rapid, on-site artefact and environmental assessments, selected key features would be subject to detailed (landscape specific) excavation, designed to address the research objectives of the archaeological programme.

6.10 The archaeological results would be disseminated to specialist archaeologists by means of an academic publication, either printed or web-based. The results would also be presented in the format of a popular illustrated booklet.

Landscaping Objectives

6.11 A moderate adverse impact on the visible and buried archaeology of the Belowda landscape is an inevitable result of building the road on either the Published Route or the Belowda Southern Alternative Route Option. A programme of landscaping work would be required to mitigate impacts, the general aims of which would be to:

- minimise the negative physical and visual impact of the road construction on the key landscape elements identified in para 4.18 above;
- maximise the positive amenity benefits to be gained from presentation and interpretation of the historic landscape to the public.

Landscaping Methodology

6.12 Key aims of the landscaping programme would be to:

- minimise damage to boundary features and other surface archaeology during construction;
- minimise alteration of existing boundary alignments;
- where possible, open the strip-field pattern to view from the road and appropriate viewpoints;
- provide interpretation of, and public access to, the Belowda/Tregoss historic landscape (at a low-key, non-intrusive level);

6.13 The general approach to landscaping would be to open up the Belowda Historic landscape to view from the new A30 in a subtle, non-intrusive manner. Unnecessary damage to hedgerows during construction would be avoided by physically protecting the truncated boundaries from further damage. As far as is practicable, no attempt would be made to recreate sections of Cornish hedge, other than the minimum required for consolidation purposes. No attempt would be made to rationalise cut-off field segments by removing hedgerows.

6.14 The placement of Cornish hedges for noise mitigation purposes along this section of the route is considered undesirable from a historic landscape perspective as it would reduce or eliminate visibility of the strip-fields from the road and interrupt the strip

pattern. However, if such features were considered necessary, the construction method of the boundary should be in keeping with the general landscape character, but constructed in a different style to that of any other hedgerow forming part of the Belowda system.

6.15 There is some potential for opening up and interpreting elements of the historic landscape to the wider public, although the specific potential of the Belowda field system is restricted by a generally low level of public interest in the mundane structures of the agricultural landscape, however ancient and well-preserved, and however great the specialist interest.

6.16 Interpretation should be low-key, aimed at opening up the strip-fields to view from suitable vantage points, possibly at the Scheme laybys. Information panels should be provided, illustrated with reconstructions, historic photographs and maps, showing the key landscape elements. Interpretation should not be restricted solely to the field system, but should encompass the whole visible landscape and should explain the wider historical processes involved in its formation.

6.17 It is proposed that a display board interpreting the Historic Landscape may be installed at some of the Scheme lay-bys. An information panel would be provided, illustrated with reconstructions, historic photographs and maps showing the key landscape elements. Interpretation would not be restricted solely to the excavated features, but should encompass the whole visible landscape and should explain the wider historical processes involved in its formation. Local authority consideration should also be given to siting an additional board on Castle-an-Dinas, from which there are extensive views of the Tregoss strip-fields and Goss Moor.

7.0 References

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PUBLISHED SCHEME ALIGNMENT
BELOWDA ALTERNATIVE ALIGNMENT
OUTLINE OF LIKELY MEDIEVAL CROPPING UNITS
LIKELY MEDIEVAL UPLAND ROUGH PASTURE (REL & URG)
MARSH/STREAMWORKS (URG)
MEADOWS (AEL)
STRIP FIELDS (AEL)
SETTLEMENTS (AEL)

Castle Downs
Castle-an-Dinas Fort
Castle Farm
B3274
Belowda Beacon
BRYNN VALLEY
Little Brynn
Demelza Lane
Tresaddern Bungalow
Higher Trenoweth
Belowda
Disused Mine
Lower Trenoweth
Providence
Brynn Barton
Holy Well
Black-acre
Saffron Park
Beacon View
A30 (T)
Iron Bridge
Treranke Cottages
B3274
Dee Tye Farm
A30 Trunk Road
Newquay - St. Austell Railway
Newquay Railway Line
Tregoss
Tregoss Moor
Goss Moor
N

HIGHWAYS AGENCY The Highways Agency Temple Quay House 2 The Square Temple Quay BRISTOL BS1 6HA	A30 BODMIN TO INDIAN QUEENS IMPROVEMENT	Drawing Title BELOWDA ALTERNATIVE CULTURAL HERITAGE	*Alfred McAlpine Civil Engineering* Exchange House, Kelburn Court, Leacroft Road, Birchwood, Warrington. WA3 6SY

Figure 1

Scale at A3 : 1:12500

Drawn	Approved	Revised
MB	SRW	
Checked	Date	Date
SF	APR 03	

Scott Wilson